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10/722,454	11/28/2003	Toshiyuki Kasai	117784	8255

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EXAMINER	
SHAPIRO, LEONID	
ART UNIT	**PAPER NUMBER**
2629	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/722,454	KASAI, TOSHIYUKI	
	Examiner	Art Unit	
	Leonid Shapiro	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7,9-11,14-20,22 and 23* is/are rejected.

7)☒ Claim(s) *5-6,8,12-13,21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitations of independent claims 1-2,15-16: "wherein, when a first drive mode is selected as the drive mode, the drive mode selecting circuit drives the electro-optical element for a first light emitting time period shorter than a time period from a time point at **which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected**, and wherein, when a second drive mode other than the first drive mode is selected as the drive mode, the drive mode selecting circuit drives the electro-optical element for a second light emitting time period longer than the first light emitting time period **in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected**" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4,7,9-11, 14-20,22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yumoto (US Patent No. 6,859,193 B1) in view of Kanauchi et al. (US 6.788.277 B2).

As to claim 1, Yumoto teaches an electro-optical device (See Col. 1, Lines 7-18), comprising:

a plurality of scanning lines (See Fig. 7, items scanA1,...,scanAN);

a plurality of data lines (See Fig. 7, items data);

a plurality of pixels correspondingly provided to intersections of the scanning lines and the data lines (See Fig. 7, item 25, Col. 13, Lines 48-58), each of the plurality of pixels having storing device that stores data (See Fig. 5, item C), a driving element that sets a driving current in accordance with the data stored in the storing device (See Fig. 5, item TFT2), and an electro-optical element that emits light with a brightness corresponding to the set driving current (See Fig. 5, item OLED, Col. 11, Lines 15-36);

a scanning line driving circuit that selects the scanning line corresponding to a pixel in which data should be written, by outputting a scanning signal to the scanning lines (See Fig. 5, items 21,23);

a data line driving circuit that cooperates with the scanning line driving circuit to output data to the data line corresponding to the pixel in which data should be written (See Fig. 5, item 22, Col. 13, Lines 58-61); and

a drive mode selecting circuit that selects a drive mode of each of the plurality of pixels (in the reference is equivalent to drive line "drv" to each pixel parallel to the scanning line) (See Col. 16, Lines 14-17),

wherein, when a first drive mode is selected as the drive mode, the drive mode selecting circuit drives the electro-optical element (See Fig. 11, items C, TFT5, Col. 16, Lines 6-10) for a first light emitting time period shorter than a time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected See Col. 3, Lines 65-66), and

wherein, when a second drive mode other than the first drive mode is selected as the drive mode, the drive mode selecting circuit drives the electro-optical element (in the reference when TFT5 of Fig. 11 is off in time of writing current through OLED is 0) for a second light emitting time period longer than the first light emitting time period in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected (in the reference in units of the scanning lines)(See Fig. 11, items TFT5,OLED, from Col. 15, Line 67 to Col. 16, Line 10 and Col. 13, Lines 65-67).

Yumoto does not disclose the plurality of pixels forming a plurality of display area.

Kanauchi et al. teaches the plurality of pixels forming a plurality of display area (fig.12, items 1,2, col. 10, lines 9-19).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teachings of Kanauchi et al. into Yumoto system in order to reduce power consumption (col. 1, lines 8-14 in the Kanauchi et al. reference).

As to claim 2, Yumoto teaches an electro-optical device (See Col. 1, Lines 7-18), comprising:

a plurality of scanning lines (See Fig. 7, items scanA1,...,scanAN);

a plurality of data lines (See Fig. 7, items data);

a plurality of pixels correspondingly provided to intersections of the scanning lines and the data lines (See Fig. 7, item 25, Col. 13, Lines 48-58), each of the

plurality of pixels having capacitor to which data writing is performed (See Fig. 5, item C), a driving transistor that sets a driving current in accordance with the data stored in the storing device (See Fig. 5, item TFT2), and an electro-optical element that emits light with a brightness corresponding to the set driving current (See Fig. 5, item OLED, Col. 11, Lines 15-36);

a scanning line driving circuit that selects the scanning line corresponding to a pixel in which data should be written, by outputting a scanning signal to the scanning lines (See Fig. 5, items 21,23);

a data line driving circuit that cooperates with the scanning line driving circuit to output data to the data line corresponding to the pixel in which data should be written (See Fig. 5, item 22, Col. 13, Lines 58-61); and

a drive mode selecting circuit that selects a drive mode of each of the plurality of pixels (in the reference is equivalent to drive line "drv" to each pixel parallel to the scanning line) (See Col. 16, Lines 14-17),

wherein, when a first drive mode is selected as the drive mode, the drive mode selecting circuit drives the electro-optical element (See Fig. 11, items C, TFT5, Col. 16, Lines 6-10) for a first light emitting time period shorter than a time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected See Col. 3, Lines 65-66), and

wherein, when a second drive mode other than the first drive mode is selected as the drive mode, the drive mode selecting circuit drives the electro-optical

element (in the reference when TFT5 of Fig. 11 is off in time of writing current through OLED is 0) for a second light emitting time period longer than the first light emitting time period in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected (in the reference in units of the scanning lines)(See Fig. 11, items TFT5,OLED, from Col. 15, Line 67 to Col. 16, Line 10 and Col. 13, Lines 65-67).

Yumoto does not disclose the plurality of pixels forming a plurality of display area.

Kanauchi et al. teaches the plurality of pixels forming a plurality of display area (fig.12, items 1,2, col. 10, lines 9-19).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teachings of Kanauchi et al. into Yumoto system in order to reduce power consumption (col. 1, lines 8-14 in the Kanauchi et al. reference).

As to claim 15, Yumoto teaches a method of driving an electro-optical device (See Col. 1, Lines 7-18), comprising a plurality of pixels correspondingly provided to intersections of the scanning lines and the data lines (See Fig. 7, item 25, Col. 13, Lines 48-58), each of the plurality of pixels having storing device that stores data (See Fig. 5, item C), a driving element that sets a driving current in accordance with the data stored in the storing device (See Fig. 5, item TFT2), and an electro-optical element that emits light with a brightness corresponding to the set driving current (See Fig. 5, item OLED, Col. 11, Lines 15-36), a drive mode selecting circuit that selects a drive mode of each of

the plurality of pixels being selected (in the reference is equivalent to drive line "drv" to each pixel parallel to the scanning line) (See Col. 16, Lines 14-17), the method comprising:

a first step, when a first drive mode is selected as the drive mode, the drive mode selecting circuit drives the electro-optical element (See Fig. 11, items C, TFT5, Col. 16, Lines 6-10) for a first light emitting time period shorter than a time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected See Col. 3, Lines 65-66), and

a second step, when a second drive mode other than the first drive mode is selected as the drive mode, the drive mode selecting circuit drives the electro-optical element (in the reference when TFT5 of Fig. 11 is off in time of writing current through OLED is 0) for a second light emitting time period longer than the first light emitting time period in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected (in the reference in units of the scanning lines)(See Fig. 11, items TFT5,OLED, from Col. 15, Line 67 to Col. 16, Line 10 and Col. 13, Lines 65-67).

Yumoto does not disclose the plurality of pixels forming a plurality of display area.

Kanauchi et al. teaches the plurality of pixels forming a plurality of display area (fig.12, items 1,2, col. 10, lines 9-19).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teachings of Kanauchi et al. into Yumoto system in order to reduce power consumption (col. 1, lines 8-14 in the Kanauchi et al. reference).

As to claim 16, Yumoto teaches a method of driving an electro-optical device (See Col. 1, Lines 7-18), comprising a plurality of pixels correspondingly provided to intersections of the scanning lines and the data lines (See Fig. 7, item 25, Col. 13, Lines 48-58), each of the plurality of pixels having a capacitor to which data writing is performed (See Fig. 5, item C), a driving transistor that sets a driving current in accordance with the data stored in the storing device (See Fig. 5, item TFT2), and an electro-optical element that emits light with a brightness corresponding to the set driving current (See Fig. 5, item OLED, Col. 11, Lines 15-36), a drive mode selecting circuit that selects a drive mode of each of the plurality of pixels being selected (in the reference is equivalent to drive line "drv" to each pixel parallel to the scanning line) (See Col. 16, Lines 14-17), the method comprising:

a first step, when a first drive mode is selected as the drive mode, the drive mode selecting circuit drives the electro-optical element (See Fig. 11, items C, TFT5, Col. 16, Lines 6-10) for a first light emitting time period shorter than a time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected See Col. 3, Lines 65-66), and

a second step, when a second drive mode other than the first drive mode is selected as the drive mode, the drive mode selecting circuit drives the electro-optical

element (in the reference when TFT5 of Fig. 11 is off in time of writing current through OLED is 0) for a second light emitting time period longer than the first light emitting time period in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected (in the reference in units of the scanning lines)(See Fig. 11, items TFT5,OLED, from Col. 15, Line 67 to Col. 16, Line 10 and Col. 13, Lines 65-67).

Yumoto does not disclose the plurality of pixels forming a plurality of display area.

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Kanauchi et al. teaches the plurality of pixels forming a plurality of display area (fig.12, items 1,2, col. 10, lines 9-19).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teachings of Kanauchi et al. into Yumoto system in order to reduce power consumption (col. 1, lines 8-14 in the Kanauchi et al. reference).

As to claims 3,7,17 Yumoto teaches the drive mode selecting circuit impulse-driving the electro-optical element when the first drive mode is selected (See from Col. 23, Line 60 to Col. 24, Line 7), and hold-driving the electro-optical element when the second drive mode is selected (in the reference when TFT5 of Fig. 11 is off in time of writing current through OLED is 0).

As to claims 4,18-20 Yumoto teaches each of the pixels further having a control transistor provided in a current path of the driving current to be supplied to the electro-optical element (See Fig. 1, items TFT5,OLED), and the drive mode selecting circuit driving the electro-optical element in the first drive mode and the electro-optical element in the second drive mode, by controlling an onloff state of the control transistor in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected)(See Fig. 11, items TFT5,OLED, from Col. 15, Line 67 to Col. 16, Line 10 and Col. 13, Lines 48-67).

As to claims 9-10,22 Yumoto teaches the data line driving circuit outputting the data as a data current to the data lines, each of the pixels further having a programming transistor (See Fig. 11, items TFT1), and the programming transistor carrying out the data writing to the capacitor on the basis of a gate voltage that is generated due to carrying data current flowing in a channel of the programming transistor (See Figs. 9, 11, items TFT1, Col. 14, Lines 37-65).

As to claims 11,23 Yumoto teaches the data line driving circuit outputting the data as a data voltage to the data line, and the data writing to the capacitor being carried out on the basis of the data voltage (See Figs. 9, 11, items TFT1, Col. 14, Lines 37-65).

As to claim 14, Yumoto teaches an electronic apparatus mounted with the electro-optical device (See Col. 25, Lines 53-67).

Allowable Subject Matter

4. Claim 5-6,8,12-13,21 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Relative to claim 5 the major difference between the teaching of the prior art of record (Yumoto) and the instant invention is that when the first drive mode is selected, the drive mode selecting circuit impulse-drives the electro-optical element by repeatedly cutting off the current path of the driving current using the control transistor in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.

Claim 6 depend on claim 5.

Relative to claim 8 the major difference between the teaching of the prior art of record (Yumoto) and the instant invention is that when the second drive mode is selected, the drive mode selecting circuit hold-drives the electro-optical element by continuously supplying the driving current to the electro-optical element in accordance with the data written to the capacitor in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.

Relative to claim 12 the major difference between the teaching of the prior art of record (Yumoto) and the instant invention is that the drive mode selecting circuit outputting a pulse signal of controlling the driving of the electro-optical element on the

basis of a drive mode signal of specifying the drive mode, and the drive mode selecting circuit outputting a signal having a pulse shape in which a high level and a low level are alternately repeated as a pulse signal when the first drive mode is selected, and outputs a signal having a waveform other than that in the first drive mode as the pulse signal when the second drive mode selected.

Claim 13 depend on claim 12.

Relative to claim 21 the major difference between the teaching of the prior art of record (Yumoto) and the instant invention is that in the second step, the electro-optical element being hold-driven by continuously supplying the driving current to the electro-optical element in accordance with the data written to the capacitor in the time period from a time point at which the scanning line corresponding to the pixel in which data should be written is selected to a time point at which the scanning line is next selected.

Response to Arguments

5. Applicant's arguments regarding drawings objection, filed 12/08/06 have been fully considered but they are not persuasive:

On page 10, 4th paragraph of Remarks, Applicant stated that at least Fig. 6 which illustrates elements SELI, SEL(a) and SEL(b) and as described in at least paragraphs [0070]-[0081] of the Applicant's disclosure. However, Applicant's in fig. 6 show vertical scanning period and timing of areas A,B and C, but do not show a **scanning line timing**, which is a limitation of all independent claims.

6. Applicant's arguments with respect to claims 1-4,7,9-11,14-20,22-23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Telephone Inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 571-272-7683. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LS
02.20.06

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